BRMS-WSR

Belt rip monitoring with width sensors + RFID

Description
Belt conveyors are subject to damage (longitudinal belt rips) through the impact of foreign objects; the loading and discharging areas being the most commonly endangered points. The BRMS-WSR allows the monitoring of these areas in any belt type. The monitoring principle is based on identifying changes in the belt width caused by belt rips. The measuring principle for belt rip monitoring includes identification of the belt position (belt misalignment). The BRMS-WSR can be integrated into the existing system communication. Various interfaces are available for transmitting locally evaluated measuring data and for setting and reading the device parameters.

Advantages
- Compact design
- Extremely simple retrofit
- Easy installation
- Low maintenance
- Multi-communication options
Function
The belt rip monitoring system BRMS-WSR identifies inadmissible (positive or negative) changes in belt width which are interpreted by the control unit as belt rips. The belt width is captured via the axial deflection of the belt position sensors. An RFID-tag installed in the belt acts as synchronization point. The synchronization tag is captured by the RFID-unit. The distance impulses are captured by the sensor twin idler. Together with the values of the belt position sensors, this information is stored in the control unit following the learning process as belt width profile. In the monitoring mode, the learned belt width profile and the current belt width are continuously compared with each other. The tolerance limits between the learned profile and the current belt width can be separately parameterized for positive and negative deviations. The chassis serves the ideal arrangement of the components and contributes to the overall simple installation of the BRMS-WSR system.
Technical data

Conveyor specific data
• Belt width ........................................ universal
• Belt conveyor length ................................... 12 km
• Belt type ........................................ universal
• Belt conveyor velocity ................................≤ 9 m/s

Control unit
Control unit
- Display ......................................... 20 characters per row; 4 rows
- Membrane keyboard ........................................ 1 x 4 Matrix und 4 x 4 Matrix
- Supply voltage .................................................. 100 - 240 V AC; 50 - 60 Hz
- Input for distance impulse ...................................... two-wired Namur transmitter
- Input for RFID synchronization .................................. synchronizations-signal
- 2 inputs opto-decoupled ........................................ rip acknowledgement (external); on-site parameter input blocked
- Contact output ...................................................... 6 A / 250 V AC Rip shut off
- Communication interfaces ....................................... Profibus-DP or -FDL
- Inputs and outputs ........................................ Connecting system: EMSYS module plug system

Belt position sensor

Belt position sensor
- Supply voltage ................................................. 12 V DC
- Input current ..................................................... 50 mA
- Sensor stroke .................................................... 400 mm
- Resolution .......................................................... 5 mm
- Inputs and outputs ........................................ Connecting system: EMSYS module plug system

BRMS-WSR
- IP-code .......................................................... IP 54
- Operating temperature range .................................. \(-20^\circ\text{C} \leq TA \leq +60^\circ\text{C}\)
- Standard design .............................................. pending
RFID-unit

- Frequency range: UHF
- Supply voltage: 12 V DC
- Input current: 500 mA
- IP-code: IP 54
- Inputs and outputs: Connecting system: EMSYS module plug system